



**SOLAR PV TECHNICAL TRAINING WORKSHOP
ECOWAS RENEWABLE ENERGY ENTREPRENEURSHIP SUPPORT
FACILITY,
14 -18 December 2015
Praia, Cape Verde**

Monday, 14 December 2015

	ARRIVAL OF THE PARTICIPANTS TO PRAIA AND TRANSFER TO THE HOTEL
12h45	PICK-UP AT THE HOTEL FOR THE PARTICIPANTS
13:00	LUNCH
14:30	INTRODUCTION OF THE PARTICIPANTS AND PRESENTATION OF THE AGENDA
15:00	FIELD VISIT <ul style="list-style-type: none"> • Valle Da Costa: solar-wind hybrid mini-grid • Solar pumping system (in Vale da Costa)
18:30	RETURN TO THE HOTEL

Tuesday, 15 December 2015

	PICK-UP AT THE HOTEL FOR THE PARTICIPANTS
07:30	PICK-UP AT THE HOTEL FOR THE PARTICIPANTS
08:00	OFFICIAL LAUNCH OF THE FACILITY IN CABO VERDE AND OPENING OF THE TRAINING <ul style="list-style-type: none"> • Pedro Semedo, CERMI • Bachir Ouedraogo, 2iE • Mahama Kappiah, ECREEE • Tijana Radojicic, IRENA • Marc DeBourcy, Luxembourg Embassy in Cabo Verde- tbc • Leonesa Fortes, Ministry of Tourism, Investments and Entrepreneurial Development of Cabo Verde - tbc
09:30	GROUP PICTURE AND COFFEE BREAK
10:00	THE STATE OF THE ART ON THE PHOTOVOLTAIC INDUSTRY

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10:30	OVERVIEW OF SOLAR PV MODULES AND THEIR MANUFACTURING PROCESS (from silica to PV solar panels highlighting different types of solar panels, testing and standardization under standard test conditions (STC), factors affecting performance of solar cells, electrical protection, quality measurements)
11:00	FUNCTIONAL ANALYSIS OF A PV SYSTEM (capture system, storage system (highlight batteries commonly used, their characteristics, battery life, battery selection criteria, maintenance and safety), power conditioning, charge controllers and inverters for standalone applications (highlighting configuration of charge regulators, inverter selection, efficiency and rating, surge capacity), system protection, PV mounting systems overview (types of mounting systems, types of foundations, suitability for different surfaces/roofs), balance of system (cabling, array strong protection, disconnection devices, lightning protection))
13:00	LUNCH
14:30	SOLAR POTENTIAL WITH A FOCUS ON THE IMPORTANCE OF DATA ACCURACY AND THE IMPACT ON THE DESIGN AND PERFORMANCE OF THE SYSTEM
15:30	SOLAR PV APPLICATION (isolated system, grid-connected systems, mini own networks, introduction to pumping systems)
16:00	BREAK
16:15	VISIT TO SOLAR SYSTEM IN PRAIA
17:30	TRANSFER TO THE HOTEL

Wednesday, 16 December 2015

08:30	PICK-UP AT THE HOTEL FOR THE PARTICIPANTS
09:00	SIZING TECHNIQS FOR PHOTOVOLTAIC SOLAR SYSTEMS (Manual Design Methodology) PART 1 – STANDALONE PV SYSTEM DESIGN AND COMPONENT SIZING (System design principles, energy demand assessment, load characteristics, energy efficiency, determining system configuration, system nominal voltage, basic requirements for component sizing, array sizing with general and with MPPT charge controller, regulator and inverter sizing.) PART 2- GRID CONNECED ROOFTOP PV
10:30	BREAK
11:00	SIZING TECHNIQS FOR PHOTOVOLTAIC SOLAR SYSTEMS (Manual Design Methodology) PART 3 – SOLAR PV WATER PUMPING SYSTEM DESIGN (requirements for pump selection, pump output curves and efficiency, component design) PART 4 – PV DIESEL HYBRID SYSTEM OVERVIEW (system configuration and optimization)

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- 13:00** LUNCH
- 14:30** **SIZING TECHNIQS FOR PHOTOVOLTAIC SOLAR SYSTEMS (Software Design Methodology)**
RETScreen International
- 16:30** BREAK
- 16:45** VISIT TO SOLAR SYSTEMS IN CERMI
- 18:00** TRANSFER TO THE HOTEL

Thursday, 17 December 2015

- 07:45** PICK-UP AT THE HOTEL FOR THE PARTICIPANTS
- 08:00** **INSTALLATION METHODOLOGY OF A PV SOLAR SYSTEM (including standards and compliances, system commissioning)**
- 09:00** PREVENTIVE MAINTENANCE OF PHOTOVOLTAIC SOLAR SYSTEMS
- 10:30** BREAK
- 10:45** CORRECTIVE MAINTENANCE OF PHOTOVOLTAIC SOLAR SYSTEMS
- 13:00** LUNCH
- 14:30** LABORATORY
Installation of solar PV system
- 16:30** BREAK
- 16:45** LABORATORY (Suite)
- 18:00** TRANSFER TO THE HOTEL

Friday, 18 December 2015

- 08:30** PICK-UP AT THE HOTEL
- 09:00** **COMMERCIAL AND FINANCIAL VIABILITY OF PV PROJECTS, THE ROLE OF SUBSIDIES**
- 10:00** BREAK
- 10:30** CASE STUDY – PV HYBRID POWER PLANT
- 12:00** CASE STUDY4 – PV MICRO/MINI GRIDS SYSTEMS

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13:00	LUNCH
14:30	EVALUATION OF THE PARTICIPANTS EVALUATION OF THE TRAINING (Anonymous and individual)
17:00	FINAL WRAP-UP Final words of the training with the representatives of ECREEE and IRENA Distribution of Training Certificates Family photo Closing of the training
18:00	TRANSFER TO THE HOTEL TRANSFER TO THE AIRPORT

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